

**Serial No. 09/530,653**  
**Atty. Doc. No. 97P8646US**

**REMARKS**

Claims 23-31 are pending in the application. Claims 23-31 are rejected under 35 USC 112 because the phrase "throughout a full depth" could not be found in the original application. Claim 29 is rejected under 35 USC 112 because the limitation in claim 29 could not be found in the original specification. Claim 25 is rejected under 35 USC 112 because the group of oxides disclosed is not included in the claim. Claims 23-26 and 29-31 are rejected under 35 USC 102(e) as being anticipated by Beale or Hasz. Claims 23-26 and 29-31 are rejected under 35 USC 102(b) as being anticipated Siemens or Toyota or Druchitz or United Technologies. Claims 27-28 are rejected under 35 USC 103(a) as being unpatentable over Beale or Hasz or Siemens or Toyota or druchitz or United Technologies in view of Demaray or Strangman.

The applicants traverse the rejection of claims 23-31 under 35 USC 112. The Examiner states in paragraph 2 of the Office Communication that "The phrase 'throughout a full depth', in claim 23 could not be found in the original specification, rendering all the claims indefinite." First, there is no requirement in the patent law or regulations that every phrase used in the claims must appear in the original specification. Thus, the Examiner's position as explained in the Office Communication is without support in the law or regulation. Rather than asking whether the phrase is found in the original specification, we should ask whether or not the subject matter in the claims was described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention at the time the application was filed. One skilled in the art who reads the specification would see that the thermal barrier coating layer 4 is illustrated in FIGs. 2 and 3 as a single material that is uniform

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throughout its full depth. No layering or change in material properties across the depth of the coating is described in the specification or is shown in the Figures. Absent such teaching, one skilled in the art would understand that the layer is uniform throughout its depth. If the Examiner disagrees with this argument, she should point to that portion of the specification that suggests otherwise.

Furthermore, the specification explains that the thermal barrier coating 4 may be applied by any one of several spray and coating techniques, as described on page 5 of the Preliminary Amendment. One skilled in the art would appreciate that the spinel material being applied would extend throughout the full depth of the coating, absent some special teaching of a change in spray/coating parameters at a mid-depth point. No such change in deposition parameters is taught or suggested in the specification, so one skilled in the art would appreciate that the coating is uniform throughout its depth.

This is further supported by the originally filed claim 16 which states that a thermal barrier coating is applied by means of plasma spraying or vapor deposition. Absent some special teaching of a layered coating, one skilled in the art would understand that such processes deposit the coating with uniform material properties throughout its full depth. If the Examiner believes that one skilled in the art would think otherwise, she should provide a reason so that a complete record is available for review upon appeal. The applicants believe that it is inappropriate to base such a rejection upon the mere fact that the phrase "throughout a full depth" is not included in the specification.

Accordingly, reconsideration and withdrawal of the rejection of claims 23-31 under 35 USC 112, first paragraph, is respectfully requested.

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The applicants also traverse the rejection of claim 29 under 35 USC 112. First, please note that this paper has amended the wording of the claim. The Examiner's attention is then directed to page 3, third full paragraph, of the Preliminary Amendment, continuing to the middle of page 4, wherein there is a full teaching of the use of a spinel material that includes a combination of normal and inverse spinel materials. Accordingly, reconsideration and withdrawal of the rejection of claim 29 under 35 USC 112, first paragraph, is respectfully requested.

Claim 25 has been amended herein to limit the oxide material to one of the group disclosed in the specification, per the Examiner's suggestion. With this amendment, the rejection of claim 25 has been overcome. This amendment places the claims in better form for consideration upon appeal, thus entry of this amendment and withdrawal of the rejection under 35 USC 112 is requested.

The rejections of claims 23-26 and 29-31 under 35 USC 102(e) and under 35 USC 102(b) are not sufficiently informative to allow the applicants to respond and are thus improperly expressed rejections under MPEP 707.07(d). The Examiner states these rejections are applied to the newly presented claims "for reasons of record in Paper No. 10." However, Paper No. 10 does not provide such reasons; nor can it, since the newly presented claims contain different limitations than did the previously rejected and now-cancelled claims. For example, the newly presented claims contain the limitation that the coating comprises a spinel material throughout a full depth of the thermal barrier coating. No discussion of how this limitation is found in the cited prior art patents has been provided in Paper No. 10 or in any other paper. Reconsideration of these rejections is requested in the hope that the Examiner will find the claims allowable. Should the Examiner decide to maintain one or both of these rejections, a properly explained

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basis for the rejection would at least provide a complete and arguable record for review upon appeal.

The applicants have provided in Paper Number 15 a detailed explanation of why each of claims 23 through 31 contain novel and nonobvious limitations. Arguments were provided for each of the previously cited prior art references. The Examiner has failed to answer each of these arguments as required under MPEP 707.07(f).

The Examiner does make reference to just one of the applicant's arguments, i.e. the fact that while the Druschitz patent does disclose an oxide coating containing a layer of spinel, he does not teach a thermal barrier coating comprising a spinel material throughout its full depth. The Examiner states that the present invention is not limited to having just one coating, and that the composition of the claimed coating is disclosed. The applicants traverse this position because Druschitz actually teaches away from a thermal barrier coating. At column 2, lines 11-18, Druschitz describes how in die casting the metal and the mold must be cooled as quickly as possible. This teaches away from the use of a thermal barrier coating material since any thermally insulating material would slow the cooling process. One skilled in the art of molding or in the art of thermal barrier coatings would know that patents related to molding are not analogous art for thermal barrier coatings since thermal barrier coatings are unacceptable in that application.

The applicants reiterate the positions provided in Paper 16 that the combination of limitations of claim 23 is patentable over the cited prior art and that the dependent claims each provide additional limitations that provide additional bases for patentability. The Examiner is requested to consider those arguments and to provide a specific answer to each of the arguments in accordance with MPEP 707.07(f). The applicants believe that upon further consideration of

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these arguments, the Examiner will agree that the claims are now in condition for allowance. In the alternative, the Examiner's specific answers will provide a complete and arguable record for consideration on appeal.

Entry of this amendment under 37 CFR 1.116, reconsideration of the application and allowance of claims 23-31 are respectfully requested.

The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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